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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/649,862	08/28/2003	Der-Zheng Liu	TOP 312	6352
23995	7590	11/21/2008		
RABIN & Berdo, PC 1101 14TH STREET, NW SUITE 500 WASHINGTON, DC 20005			EXAMINER BURD, KEVIN MICHAEL	
			ART UNIT 2611	PAPER NUMBER
			MAIL DATE 11/21/2008	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/649,862

**Applicant(s)**

LIU ET AL.

**Examiner**

Kevin M. Burd

**Art Unit**

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 October 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-7 and 12-22 is/are allowed.
- 6) ☒ Claim(s) 8-11 is/are rejected.
- 7) ☒ Claim(s) 12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

1. This office action, in response to the amendment filed 10/6/2008, is a final office action.

***Response to Arguments***

2. Applicants reference the article received in the IDS filed 6/11/2008. The remarks filed 6/11/2008 appear to indicate applicants do not recall what if any particular publication was the source of the prior art figures 1A and 1B. "Effects of Tuner IQ Imbalance on Multicarrier-Modulation Systems" was provided as a reference that was located through Google Scholar (remarks filed 6/11/2008). Therefore, this reference does not appear to be the particular publication what was the source of the prior art figures. This reference was previously considered in the IDS provided on 6/11/2008. If the actual particular publication that was the source of the prior art figures is located, the examiner requests a copy of this publication be provided so the record is clear and complete.
3. An objection to claim 12 is recited below. The examiner also suggest the term "both" be added on line 5 of claim 12 between the terms "transmitting" and "the first signal" so the claim clearly reflects the transmitter transmitting both modulated signals through only one modulation path.
4. Applicant's arguments filed 10/06/2008 regarding claims 8-11 have been fully considered but they are not persuasive. The prior art discloses transmitting a modulated signal through only a single first modulation path and transmitting another modulated

signal through only a single second modulation path. For these reasons and the reasons stated in the previous office action, the rejection of claims 8-11 are maintained and stated below.

5. Applicant's arguments with respect to claims 1-7 and 12-22 have been fully considered and are persuasive. The rejection of the claims has been withdrawn. The specifications, specifically pages 5, lines 13-22; page 9, lines 10-16; and page 12, lines 21 to page 13, line1, discloses a modulation path comprises the I or Q branch in the transmitter. For example, page 5, lines 13-22 discloses the I modulation path comprises specific components and the Q modulation path comprises other specific components unique to just the Q path. For this reason, the examiner's interpretation of the modulation path comprising components from both the I and Q branches of the transmitter is inconsistent with applicants definition of a modulation path where a modulation path comprises only the components of the I or Q branch but not both used throughout the specification. For this reason, the previous rejection of claims 1-7 and 12-22 is withdrawn.

### ***Claim Objections***

6. Claim12 is objected to because of the following informalities: in line 5, the phrase "first modulated signal" should be changed to "first modulated carrier".  
Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 8-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Kaneko (JP 09-153882). (A translation of this reference was previously provided and is cited in the following rejection of the claims.)

Regarding claim 8, Kaneko discloses a method of estimating an I/Q imbalance parameter of a receiver. Figure 4 discloses the system. A first signal is modulated by a first and second modulated carrier. The first signal's I component is modulated in multiplier 43 (paragraph 0059). The first signal's Q component will be modulated by multiplier 44 (paragraph 0059). The I and Q components will be combined in adder 45 and transmitted to a receiver. The received signal is demodulated by a first and second demodulation carrier in multipliers 47 and 48 (paragraph 0061). The transmitter will transmit a second signal in the same manner as the first signal (paragraph 0059). The receiver will receive the second signal in the same manner as the first signal. The system will transmit a positive and negative carrier wave where the frequencies of the carrier waves are symmetrical in the frequency domain (paragraph 0056). The signals will be received in the receiver. The signals are recited in paragraph 0059.

Regarding claim 9, as stated above, the multipliers 43 and 44 and adder 45 comprise the modulation path of the transmitter. The first demodulation path is the

portion of the receiver that processes the I component of the received signal and the second demodulation path is the portion of the receiver that processes the Q component of the received signal.

Regarding claims 10 and 11, the first and second signals are recited in paragraph 0059.

***Allowable Subject Matter***

8. Claims 1-7 and 12-22 are allowed.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M. Burd whose telephone number is (571) 272-3008. The examiner can normally be reached on Monday - Friday 9 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Payne can be reached on (571) 272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kevin M. Burd/  
Primary Examiner, Art Unit 2611  
11/19/2008